

REMARKS

The specification has been amended to correct minor informalities noted therein. The amendment to the paragraph beginning at page 34, line 21, is supported by the description of Table 1 and of Comparative Examples 1-3 and 5-7. The propriety of the remaining amendments is believed to be apparent from the amendments themselves.

The Office has maintained the rejection of claims 1-3, 5, 6 and 16-18 under 35 U.S.C. §103(a) as being unpatentable over Heneghan et al. (WO 00/35679) ("Heneghan").

In the response filed August 5, 2003, applicants argued that the data of Examples 1-6 and Comparative Examples 1-17 demonstrated unexpected improved properties of the heat-sensitive recording material of the present invention in which the heat-sensitive recording layer contains at least one pigment selected from the group consisting of aluminum hydroxide, amorphous silica, kaolin and talc in an amount of 3 to 50 wt% based on the heat-sensitive recording layer. The Office has noted, however, that the amounts of pigment used in the examples and comparative examples are not clear.

The pigment amounts employed in the Examples and Comparative Examples in the present specification are calculated below. The

pigment amounts in the heat-sensitive recording layers are calculated on a dry weight basis based on the descriptions on page 24, line 17, to page 26, line 3, and page 29, line 4, to page 30, line 9, in the present specification.

A. The pigment amounts of Examples 1-6

The pigment ($\text{Al}(\text{OH})_3$) amount = (weight of $\text{Al}(\text{OH})_3$ in heat-sensitive recording layer coating solution)/(total weight of solid contents in heat-sensitive recording layer coating solution) X 100

$$= \frac{40 \times \frac{40}{40+1+40} \times 100}{120 \times \frac{10+0.25}{10+5+25} + 40 \times \frac{10+0.25}{10+5+25} + 80 \times \frac{10+0.25}{10+5+25} + 40 \times \frac{40+0.4}{40+1+40} + 160 \times \frac{10}{100} + 20 \times \frac{50}{100} + 12.5 \times \frac{40}{100}}$$

= 17.6 wt%

B. The pigment amounts of Comparative Examples 1-8 and 12-17

The pigment (precipitated CaCO_3) amount = (weight of CaCO_3 in heat-sensitive recording layer coating solution)/(total weight of solid contents in heat-sensitive recording layer coating solution) X 100

$$= \frac{17 \times 100}{120 \times \frac{10+0.25}{10+5+25} + 40 \times \frac{10+0.25}{10+5+25} + 80 \times \frac{10+0.25}{10+5+25} + 160 \times \frac{10}{100} + 20 \times \frac{50}{100} + 17 + 12.5 \times \frac{40}{100}}$$

= 15.5 wt%

C. The pigment amounts of Comparative Examples 9 and 11

The pigment amount is calculated using the same method as in (A) above to give 17.6 wt%.

In order to further demonstrate the significance of using the specific inorganic pigments in a specific amount as defined in claim 1 of the present application, applicants are submitting herewith (under 37 C.F.R. § 1.132) a declaration of Nobuyuki IWASAKI.

As shown in Table 1 in the declaration, the heat-sensitive recording materials containing specific pigments used in an amount of 3 to 50 wt% based on the heat-sensitive recording layer (Experiments 1-9) exhibit excellent recording properties.

On the other hand, a heat-sensitive recording material with an amount of pigment of less than 3 wt% (Comparative Experiment 1) exhibits inferior recording properties, especially with regard to heat resistance and the hot water resistance of the unrecorded portion as compared with the heat-sensitive recording material of Experiments 1-9.

Furthermore, the heat-sensitive recording material with an amount of pigment of more than 50 wt% (Comparative Experiment 2) also exhibits inferior recording properties, especially with regard

to the recording density of the recorded portion, the light resistance of the recorded portion, water resistance, the hot water resistance of the recorded portion, and plasticizer resistance as compared with the heat-sensitive recording material of Experiments 1-9.

As a matter of course, the heat-sensitive recording materials in Experiments 1-9 show superior recording properties in comparison with the heat-sensitive recording material of Comparative Example 1 in the present specification, which corresponds to Heneghan in the manner of using CaCO_3 as a pigment.

The shaded portions shown in Table 1 in the declaration indicate inferior results as compared with Experiments 1-9.

In view of the above data and the data of the accompanying declaration, removal of the 35 U.S.C. § 103(a) rejection is believed to be in order and is respectfully solicited.

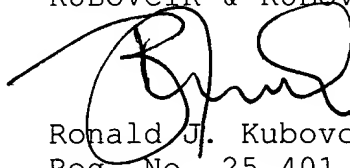
The foregoing is believed to be a complete and proper response to the Office Action dated November 3, 2003, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

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